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No. 7

## NOTES ON ARGYNNIS CYBELE.

BY W. SAUNDERS, LONDON, ONT.

On the 7th of June, while turning over some loose rails lying on a moist piece of ground, near the edge of a wood, I found attached to the underside of one of the rails, lying high and dry, two spinous larvæ, which, from their appearance and location, I at once suspected to be the larvæ of some species of *Argynnis*. The Wild Violet also, the food plant of at least several of this family, growing in abundance here, helped to confirm my suppositions. These afterwards proved to be the larvæ of *Argynnis cybele*. Both larvæ were in the act of spinning a small web of silk, to which their terminal prolegs were attached, indicating that the change to the chrysalis state would soon take place. The following description was at once taken:—

Length 1.70 inches. Body thickest along the middle segments, tapering a little at each end, coils itself up when disturbed.

Head medium sized, flat in front, slightly bilobed, each lobe tipped above with a short tubercle, from which arises a moderately long black hair; colour black in front, edged posteriorly above, and half way down the sides with dull brownish-yellow. On the front there are many fine black hairs of varying lengths.

Body above black, with a faint tinge of reddish brown, armed with a transverse row of branching spines on each segment. On the second segment there is a branching spine on each side the dorsal line all black, and another pair on sides between the second and third segments, black above, brownish-yellow at base. On the third segment there are four spines similarly situated, that is, one sub-dorsal pair, and another pair lower down, and placed between the third and fourth segments, all black above, brownish-yellow at base. On the fourth segment there is one pair of spines only, the sub-dorsal. From the fifth to the twelfth segments inclusive, each is alike ornamented with a transverse row of six branching spines, those on each side the dorsal line entirely black, or

with but a slightly paler shade at base; the next row lower down black above, with a small portion of their base brownish-yellow, excepting on the twelfth segment, where they are all black; but in the next row below, the spines have a larger portion of their base brownish-yellow, with a small space around the base of each where the same colour prevails. Terminal segment with two pairs of black branching spines, one pair placed behind the other, the hindermost being a little the shortest. On the sides of each of the anterior segments, below the spines, there are several shining black tubercles, each emitting a small cluster of short black hairs. Spiracles oval, black, edged with a paler shade.

Under surface dull dark reddish-brown. The fifth, sixth, eleventh and twelfth segments each have a transverse row of shining tubercles, emitting tufts of short black hairs: feet black, prolegs have a patch of black on the outside at their base, reddish-brown above, and within.

Before turning to chrysalis, the colour at the base of the spines changed from brownish-yellow to a semi-transparent greenish hue.

One specimen hung itself up June 9, and became a chrysalis June 10. From the first, the chrysalis is very dark coloured. The following description was taken a few days after the change was effected:—

Chrysalis.—Length 1.30 inches. Colour brown, spotted and streaked with black, the whole surface having a polished appearance as if it had been varnished. Head case square above, the flat portion terminating on each side in a slightly raised blackish tubercle: a dark line extends across from one tubercle to the other, bordered in front and behind with yellowish brown. A double ventral row of dark brown or blackish tubercles, one pair on each segment; below these there is a second row of smaller tubercles of a paler colour along the middle segments, just above the spiracles. At the base of the wing cases is a pointed projection. Anterior segments raised to a sharp ridge, and the ventral edge of the wing cases have a similar ridge along the basal portion. Antennae cases dark brown; spiracles oval black. Dorsal region of posterior segments dark brown, nearly black.

On visiting the same locality on the 9th of June, three chrysalides were found on the under side of pieces of bark which had been peeled off a dead tree, and were lying scattered about. The pupae were found attached to those pieces which were lying with their convex side upwards, thus affording a dry and sheltered spot under, for the larvae to attach themselves to. I then collected a number of such pieces of bark,

and laid them about in this manner in spots where the Wild Violets grew thickest, and on my return two or three days after, found six more chrysalides, and another larva just about to change. I feel assured that with such traps as these laid about in places where they are feeding, any one may secure specimens of these larvæ without trouble during the first week or ten days in June. I have never succeeded in finding them otherwise, although I have searched long and often. One of the chrysalides produced the imago on the 26th, another on the 27th of June, and others at intervals between the 27th of June, and the 4th of July. The specimen which changed to a chrysalid on the 10th of June produced the imago on the 29th, but this was kept in a cool room all the time, and was hence probably longer in perfecting than it would have been if exposed to the warming influence of the summer's sun. I should judge the ordinary duration of the chrysalis state, when left in their native haunts, to be from fourteen to sixteen days. All the specimens bred proved to be *Argynnis cybele*.

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ON SOME

LEAF-MINING COLEOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

It is necessary for me to correct a serious error into which I have fallen.

At page 165, v. 3, I have described a larva mining the upper surface of leaves of the White Oak (*Quercus alba*), which seemed to me to answer the requirements of Dr. Clemens' *Lithocolletis tubiferella*, which also mines the leaves of *Quercus alba*. The larva was not removed from the mine, but viewed through the integument. It seemed to me to resemble greatly, if it was not identical with, Dr. Clemens' species. The mine answered, in every respect, to that described by Dr. Clemens. At the same time I remarked the peculiar appearance of the larva, which "differs from the ordinary flat *Lithocolletis* larva as much as that does from the larva of the first or cylindrical group." In fact I should never have suspected it to be a *Lithocolletis* larva but for the resemblance, both of the mine and larva, to that of *L. tubiferella*, as described by Dr. Clemens. I did not succeed in rearing the imago, and do not know

what it would have produced. On the next page (166, v. 3), I mentioned a larva precisely like it, but in a different blotch mine, inhabiting the leaves of Willow Oaks, and another in leaves of the Black Oak, still another in the leaves of the Beech, another in the Sugar Maple, and yet another in the leaves of a species of *Desmodium*. Viewed through the integument, all of these larvæ, except the *Desmodium* miner, resembled the supposed larva of *L. tubiferella*. The miners of the Beech and Sugar Maple leaves appeared to be identical with each other and with the supposed *L. tubiferella*, but their mines differed from it, and resembled those in the leaves of the Black and Willow Oak in being more irregular blotches. The miners of the Black and Willow Oaks differed from the others by being of a bluish or smoky colour instead of yellowish-white. The miner of the *Desmodium* differed from the others in shape resembling the larva of *Leucanthiza*, as described by Dr. Clemens. But the mine and cocoon (or rather *nidus*), are indistinguishable from those of *Lithocolletis guttifinitella* Clem. and allied species of *Lithocolletis*. *These larvæ are all Coleopterous!* They remained in the mines without food from September to the latter part of April. All died except the miners of the Beech (*Fagus ferruginea*) and of the *Desmodium*. In the latter part of April these became pupæ, remaining in that condition for ten days, when the imagines emerged. The miner of the Beech proved to be *Brachys aeruginosa*, Say, as identified by Dr. Horn, as I am informed by Mr. Wm. Saunders.

The miner of the *Desmodium* proved to be *Metonius laevigatus*, Say, as identified by Mr. Johnson Pettit, of Grimsby, Ont. The larva of the *Brachys* resembles that of *Chrysobothris femorata*, as figured in Packard's Guide, p. 457, more nearly than that of *Trachys pygmaea*, figured on p. 458. The head is rounded in front; the first segment is much the largest, and the larva tapers rapidly thence to the fourth segment, and thence more gradually to the apex. The larva of *Metonius laevigatus* is flattened, and is rather widest about the middle, tapering, however, more rapidly to the tail than towards the head; the first segment is largest, and the head rounded in front. It resembles the larva of *Trachys* in outline more than that of *Chrysobothris*. In examining dead specimens of all these larvæ removed from the mines this spring, I was not able to detect any trace of feet.

I have no excuse to plead for this error other than the facts above stated, and ignorance of Coleopterous larvæ.

*Hispa quadrata*, Fabr. mines the leaves of the Linden (*Tilia Americana*).

*Hispa inaequalis*, Weber, mines the leaves of *Eupatorium ageratoides*.

Both species pupate in the mine. Both identified by Dr. Horn.

DESCRIPTIONS OF

GELECHIA ADUNCELLA AND GELECHIA LABRADORICA.

BY AUG. R. GROTE, DEMOPOLIS, ALA.

In a very interesting paper published by Professor Zeller in the Transactions of the Royal Imperial Zoological Botanical Society of Vienna, under the date of July, 1868, I find the description of a North American *Gelechia*. The specimens were communicated to Prof. Zeller by Baron V. Osten-Sacken. I give here a free translation of Professor Zeller's comparative description:—

*Gelechia aderucella*, Zeller.—Allied to *G. ligulella*. The yellowish-white transverse line of the primaries, which becomes pure white on the costal edge, is removed farther towards the hind margin of the wing. It is strongly bent below costa towards the apices, and a little widened, is continued on the costal edge outwardly. The ground colour of the base is greyish-brown, so pale in hue as to allow the three black dots (two on the fold, one obliquely over the last of these outwardly at the middle of the wing), to be more or less distinctly perceivable, whereas in *G. ligulella* and *vorticella* no dots are visible on the black ground colour of the wing. This greyish-brown tint deepens, beyond the outer two dots, gradually into the broad black shade which margins the transverse line. The fringes of the secondaries are pale grey, becoming paler outwardly, and are even at base paler than the external portion of the wing itself. Beneath, the forewings exhibit beyond the middle, and in a corresponding position with the superior end of the transverse line of the upper surface, a rather distinct white spot. In size this species agrees with an average specimen of *G. ligulella*.

In the *Wiener Entomologische Monatschrift* for June, 1864, p. 200, I find a description, of which I give here a translation, of a species of *Gelechia* from Labrador, by Mr. H. B. Moeschler:—

*Gelechia labradorica*, Moeschler.—♂—Antennæ greyish-yellow with

whitish-yellow annuli, palpi greyish-yellow, terminal joint pale yellowish, feet, head, thorax and abdomen greyish-yellow. Forewings of a darker greyish-yellow, subcostal nervules darker, brownish. Hindwings whitish-grey, a narrow dark marginal line. Beneath, the forewings are brownish-grey, with a narrow yellow marginal line.

*Expanse* 22 mil.

This inconspicuous species is illustrated on plate 5, at figure 17.

On the same page is recorded the occurrence of *Gelechia continuella* in Labrador.

#### MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

Continued from Page 108.

##### DEPRESSARIA.

*D. pallidochrella*. *N. sp.*

Head and palpi very pale ochreous, almost white, a little darker on top, a dark brown spot extends almost entirely around the base of the third joint of the palpi, and another entirely around it before the apex. Antennae brownish, with about six white annulations in the apical part. Thorax and base of the wings pale ochreous, sparsely dusted with fuscous, with a fuscous line across the wing close to the base. About the basal one-fourth of the wing a fuscous streak passes obliquely backwards as far as the fold, and from thence to the apex the wing is pale ochreous, rather thickly dusted with fuscous and dark ochreous, with the extreme apex fuscous. Posterior wings pale fuscous; ciliae of all the wings grayish-ochreous; abdomen dark ochreous, each segment above tipped with very pale or whitish ochreous. Under surface very pale ochreous, with fuscous patches on the anterior surfaces of the meso and meto-thoracic legs. Anterior legs dark brown on their anterior surfaces. *Alar ex.* less than  $\frac{1}{4}$  of an inch. Captured in May in Kentucky.

The posterior wings in this species are deeply emarginate beneath the apex; this and the succeeding species which resemble each other being the only two described American species which display this character. This species may be distinguished from the next by its smaller size, paler color, and the brown tip of the forewings.

*D. versicolorella*. *N. sp.*

Head and palpi ochreous, thickly dusted with brown; a brown annulus around the base of the third joint of the palpi, and another before the apex. Antennae dark brown, faintly annulate with ochreous, and with five or six white annulations in the apical portion. Thorax and anterior wings ochreous, thickly dusted with dark brown; a little less thickly in the basal fourth of the wing, with a brown streak across the base of the wing, and a brown streak extending obliquely from the costa about the basal fourth, to the fold, which, however, is scarcely distinguishable from the thickly dusted portion of the wing behind it; no brown spot at the apex. Posterior wings pale fuscous: abdomen ochreous, the segments not margined with whitish, as in the preceding species. *Alar ex.*  $\frac{1}{8}$  of an inch. Captured in Kentucky in May.

*D. biosto-maculella*. *N. sp.*

Head pale yellowish, the vertex dusted with fuscous; antennae dark brown; second joint of the palpi pale yellowish, tipped with brown beneath: third joint brown, sprinkled above with pale yellowish: thorax and anterior wings blackish, or very dark brown, with ochreous and gray intermixed, with a small and indistinct ochreous spot on the costa, near the base, and another distinct costalous at the beginning of the ciliae, and an opposite dorsal one; ciliae yellowish-ochreous. There are several rather undefined irregular blackish spots or patches on the wings, which, *to the naked eye*, appear to form three irregular transverse bands, not very definite in outline, one of which adjoins each of the costal ochreous spots, whilst the other is between them. *Alar ex.*  $\frac{1}{8}$  inch. Kentucky.

*D. querciella*. *N. sp.*

This species is a *Depressaria* in every respect except that *there is a small but very distinct tuft of erect scales at the apex of the thorax*. I have but a single specimen, which, however, is in perfect condition, and shows no sign of any injury, so that I cannot doubt that the tuft is a normal structure.

Antennae dark brown or rather blackish, annulate with white; palpi iron gray; head silvery, flecked with dark brown or blackish scales; thorax iron gray, the tuft being ochreous; anterior wings dark iron gray, with a distinct small blackish spot on the costa at about the basal fourth, and two other smaller ones on the costa, one about the middle, and the other at the beginning of the apical ciliae; there are three or four similar small ones on the disc; ciliae ochreous; posterior wings pale

slate colour, and the abdomen is yet paler. The entire insect, in some lights, shows purplish reflections. Under the lens, the iron gray colour is resolved into blackish or dark brown, mixed with ochreous and whitish scales. *Alar* ex.  $1\frac{1}{2}$  inch.

The larva has the head and first segment dark purplish-brown, except the anterior margin of the first segment, which is whitish. Remaining segments whitish, with two longitudinal narrow pale purplish lines on top, outside of which, on each side, is a wider deep purple one; there is also a multitude of small purple spots, from each of which proceeds a hair. It sews together leaves of the Oak (*Quercus obtusiloba*) in May, and remains in the pupa state about ten days, the imago appearing early in June.

The two preceding species and *D. obscurusella*, *ante*, p. 106, and *D. bistrigella*, *ante*, p. 92, resemble each other very closely. *D. obscurusella* is more ochreous than the others, and the markings assume the form rather of narrow irregular and zig-zag lines, although, on close inspection, three dark costal spots may be discovered as in *querciella*, but less distinct. *D. bicostomaculella* is smaller than the others, and the three costal blackish spots have, in it, become to the naked eye three irregular bands, narrowing towards the dorsal margin. I have no specimen of *D. bistrigella* now before me, but I think it can be distinguished by the more linear shape of the ochreous streaks before the ciliae, and by the two small ochreous patches about the middle of the wing. *D. querciella* may, however, be more readily distinguished by the thoracic tuft.

As the species of *Depressaria* described in this and the preceding No. differ somewhat, structurally, it is possible that some of them ought not, in strictness, to be placed in this genus. Yet they approach it more nearly than any other. The following notes will explain their similitudes and differences:—

*D. dubitella* has the second joint of the palpi much thickened, forming a small *undivided* brush; the superior portion of the discal vein is very oblique, and the superior branch is united to the subcostal at the end of the cell. The abdomen in my single specimen is broken off. It does not belong strictly in *Depressaria*.

*D. albisparsella* has the palpi of *Depressaria*, but the brush is very large; the wings in my single specimen are closed so that I cannot observe the neuration. The antennae are minutely but distinctly pectinated, more so than in the true *Depressaria*.



*D. cerverisella* and *D. bimaculella* resemble each other in the ornamentation as well as structure. The abdomen is subdepressed, the palpal brush is small and undivided, except at the apex. The neururation is that of *Depressaria* proper, though the superior and inferior branches of the discal nervure respectively, originate a little nearer to the subcostal and median than is usual in true *Depressaria*.

*D. pseudacaciella* has the abdomen subdepressed, scarcely tufted, and the superior branch of the discal vein arises very near to the subcostal; otherwise, it is a true *Depressaria*.

*D. fusco-ochrella* has the abdomen and palpi of *Depressaria*, but the neururation of the hind wings is like that of some species of *Gelechia*: that is, the superior branch of the discal vein is absent, and the subcostal is furcate behind the cell. *D. bicostomaculella*, *D. Rileyella*, *D. obscurusella*, *D. Versicolorella*, and *D. pallidochrella*, are true *Depressariæ*, I believe, though the abdomen in my single specimen of *D. obscurusella* is missing. *D. pallidochrella* and *D. versicolorella* are very deeply emarginate beneath the apex of the hind wings. *D. querciella* has the small thoracic tuft, but is otherwise a true *Depressaria*.

All of the foregoing species agree in the neururation of the anterior wings, and all have the *Depressaria* habits of seeking concealment, and of sliding about upon their backs in their efforts to escape.

HAGNO, *gen. nov.*

At *ante p. 91*, I have described a species as *Depressaria cryptotechiella*, and have there pointed out the differences between it and the true *Depressariæ*. Indeed, it is scarcely more nearly allied to *Depressaria* than to several other genera; but having then but a single specimen of that species, and none of any other species allied to it more closely than the species of *Depressaria*, I preferred to place it provisionally in that genus. Since then, however, I have bred the species mentioned below, and not wishing to encumber that genus (already large) with any thing which does not rightly belong there, and, not knowing what else to do with these species, I have concluded to erect for them this new genus.

Head and face slightly roughened. Antennæ more than half as long as the wings; face rather narrow; eyes large, globose; tongue scaled, longer than the anterior coxæ; maxillary palpi minute; labial palpi very long, completely overarching the vertex, second joint without a brush, third joint acuminate, about two-thirds as long as the second.

Posterior wing not emarginate beneath the apex, wider than the anterior, the costal margin nearly straight, the dorsal regularly curved. The discal cell is closed: the costal vein attains the margin just before the apex; the sub-costal at the apex; the median sends a branch to the posterior margin before the discal vein, and becomes furcate at the discal vein, delivering both branches to the posterior margin. The discal vein is slightly oblique, and sends two branches to the dorsal margin: internal vein, simple.

Anterior wings *widest near the apex*; costal margin a little convex, dorsal margin nearly straight, apical margin obliquely curved, and apex obtusely rounded. Discal cell closed; costal vein attains the margin about the middle, and the sub-costal attains it before the apex, giving off one branch before the discal vein: the median rounds gradually into the discal, sending, near the discal, two long curved branches to the dorso-apical margin; and the discal sends off four veins, the superior of which is furcate, delivering one of its branches to the apex, and the other to the costal margin before the apex; the three other branches of the discal are delivered to the apical margin behind the apex; the sub-median is furcate at the base; the internal is wanting, and the fold is very distinct. The neururation is, therefore, that of *Depressaria*. The abdomen is also slightly depressed, though not so much as in *Depressaria*; and it seems to differ from that genus only in having the palpi more elongate, and without any brush, and in its wider wings, which are more obtusely rounded at the apex. It is certainly not equivalent to either *Exaretia* or *Ortholelia*, but possibly may be equivalent to *Cryptolechia*, which, however, has not the depressed abdomen.

Can this genus be the equivalent of *Psilocorsis*, Clem.? (*Proc. Acad. Nat. Sci., Phila.*, 1860, p. 212). It meets all the requirements of Dr. Clemens' diagnosis, *except as to the form and neururation of the fore wings*. Not only so, but what I have called *the pattern* of coloration is the same in my species as in those described by Dr. Clemens, especially as to the peculiar markings of the antennae and palpi; and even the very shades of colour are the same to a great extent. I have not seen any of Dr. Clemens' species, and can only compare mine with his written descriptions. The striking resemblance between my species of *Hagno* and those of *Psilocorsis*, as described by Dr. Clemens, did not attract my attention until after the preceding portion of this paper was in the hands of the printer, for, on comparing the fore wing of *H. faginella* with a

sketch of that of *Psilocorsis*, as described by Dr. Clemens, the very decided differences at once satisfied me that the genera were not the same; and the species were accordingly described as belonging to the new genus *Hagno*. Subsequently, my attention was attracted to the close resemblance between the species, and a closer comparison has suggested the probability that Dr. Clemens has misdescribed the forewings of his genus, and that the two genera may be equivalent. The differences are confined entirely to the fore wings; but then they are decided, and are as follows:—

Dr. Clemens says that in *Psilocorsis* the hind margin is obliquely pointed. In *Hagno*, the costal and dorsal margins are nearly parallel. The wing is widest just before the apex, which is obliquely truncate with the angles rounded. In *Psilocorsis*, there is a secondary cell which I have not been able to detect in *Hagno*. In *Psilocorsis*, the subcostal gives off (besides the long branch from near the middle), four branches from near the end of the cell, and the fourth is furcate. In *Hagno*, only three are given off (besides the long one from the middle), from near the end, and the third of these is furcate. In *Psilocorsis*, the median vein gives off four branches from near the end of the cell. In *Hagno* only three. In *Hagno*, the discal vein gives off two branches, but Dr. Clemens does not mention any branches from it in *Psilocorsis*.

These differences are too great to occur in one genus; and as they first caught my attention, they satisfied me that the genera were very distinct. On closer examination, however, I cannot help suspecting that there is some mistake in Dr. Clemens' diagnosis, and that the genera will prove to be equivalent.

1. *H. cryptolechiella*.

*D. cryptolechiella*. Ante p 91.

2. *H. faginella*. *N. sp.*

Ochreous yellow, with a silky lustre; anterior wings dusted with brown, and with confused indistinct dark brown blotches, and with a row of dark brown spots around the apex. The antennae are annulate with brown; the second joint of the labial palpi has a dark brown stripe along its under surface, which is continued along the under surface of the third joint to its apex, and the third joint likewise has a similar stripe along the outer, and one along its inner surface. Anterior surface of the two first pair of legs with dark brown patches, and their tarsi annulate with dark brown. *Alar ex.*  $\frac{3}{4}$  inch. Kentucky.

The larva sews together the leaves of Beech Trees (*Fagus ferruginea*) feeding between them, and there passing the pupa state, the imago emerging in May. The larva is whitish, with the head ferruginous, the next segment faintly so, and there is a pinkish patch on each side of the anterior margin of the third segment.

*H. cryptolechiella* also pupates between the leaves of its food plant, and this habit, like the stripes on the palpi, which are common to both species, might almost be considered generic characters.

*Depressaria cercerisella*, ante p. 108, seems to connect this genus with that. It has the abdomen but little depressed, the palpi elongate, as in this genus, and the brush is scarcely deserving that name, being very small, and appearing to be divided only near the apex. It agrees also with this genus in carrying the wings rather more nearly horizontal than *Depressaria*, and while it has not the dark stripes on the terminal palpal joint, it has that entire joint black. But in *Hagno*, the anterior wings are not pointed, the apical margin being oblique, whilst in *D. cercerisella*, as in all my other species of that genus the anterior wings have the apex pointed or obtusely pointed. It also differs from *Hagno*, and agrees with *Depressaria*, in not pupating between the mined leaves.

TELPHUSA, gen. nov.

Nearly allied to *Depressaria*, from which it differs in having the abdomen not depressed, the antennae more setiform; the palpal brush very small, though there is a trace of a longitudinal division; and the terminal joint of the palpi longer than the second. The superior branch of the discal vein arises from a common stalk with the apical portion of the subcostal, so that the discal sends off but a single independent branch; but this is likewise the case in some species of *Depressaria*, as e.g. *D. pseudacaciella* and some others: and in all the species of *Depressaria*, when it is independent, it arises very close to the sub-costal, the difference in this respect being that the letter V, formed where they arise from a common stalk, is split at the apex, when they do not. *D. cercerisella* has the normal neuration of *Depressaria*, but has a very small scarcely divided brush. In *Hagno, mihi*, they are more distinctly separated than in any species of *Depressaria* that I have seen. With these explanations, the account which I have given of the neuration of *Hagno* will do for this genus and for *Depressaria* also. In *Hagno*, the palpi are as in *Depressaria*, except that there is no brush. *Enicostoma*, as defined by Clemens, has very nearly the same neuration with *Depressaria* also, but

has the third palpal joint short. In *Telphusa*, the costal margin of the hind wings is a little excised from about the middle to the tip, and the apical part of the subcostal vein is curved. In all these genera, as well as in *Callima* and *Tricotapha*, the neuration of the fore wings is the same. The two latter genera differ somewhat from each other and from the preceding genera, in the neuration of the hind wings.

*T. curvistrigella*. *N. sp.*

Palpi dark purple, the tip of the second joint and an annulus near the tip of the third, white; head white; palpi white, annulate with dark purple above; thorax and anterior wings rich dark purple; at the base of the costa is a patch of whitish, mixed with purple, and just behind it is a rather wide white streak, which begins on the costa, crosses the wing obliquely to the dorsal margin, and extends along it and into the dorsal ciliae nearly to the apex; just behind the middle of the wing in the dark purple part of it, is a faint indication of a whitish fascia. *Alar ex.*  $\frac{5}{8}$  inch. Kentucky.

## HINTS TO FRUIT GROWERS.

PAPER NO. 5.

BY W. SAUNDERS, LONDON, ONT.

### THE PEACH BORER.

The wasp-like moth of the peach borer, *Egeria exitiosa*, will be busy during the present month, depositing her eggs on the bark of the trunks of the Peach trees; then as soon as the eggs hatch, the young grubs will begin to eat their way to the inner bark, where it is difficult to reach them. Much good may yet be done, either in preventing the moths from laying their eggs, or, if laid, in destroying the young larvæ, by

brushing the trunks and main branches of the trees with soft soap, reduced with lye to about the consistence of paint. Fig. 8 represents both sexes of the moth; 1 is the female, 2 the male. It will be observed that



Fig. 8.

they are very unlike each other, so much so that they may readily be

mistaken for different species. Besides the disparity in size, the fore wings of the male are transparent, while those of the female are opaque, and blue; the female also has a broad orange colored belt encircling the abdomen, which is wanting in the male.

#### TENT CATERpillARS.

It is gratifying to be able to note that the American Tent Caterpillar, *Clisiocampa Americana*, has been quite scarce during the present season, as compared with former years. In fig. 9 we give a side and back view

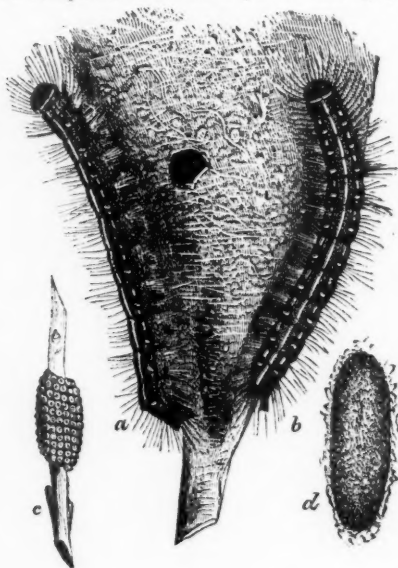


Fig. 9.

Whether the severity of the weather last winter operated unfavorably upon them, or whether their decimation is due to the increase of their natural insect foes, we are unable to determine: the fact, however, is an interesting one.

#### THE GOOSEBERRY FRUIT WORM.

There is probably no insect more troublesome to the cultivator of the Gooseberry, or more difficult to contend with, than the worm which attacks the fruit, popularly known as the "goose-

*a* and *b*, of this well known pest: *c* represents one of the ring-like clusters of eggs, and *d*, the cocoon. During this month the eggs will be laid for the next year's crop of caterpillars; they are usually placed upon the smaller twigs of the trees, each ring or cluster containing about two hundred and fifty.

The Forest Tent caterpillar *Clisiocampa sylvatica*, fig. 10, has been equally scarce; indeed we have not met with a full-grown specimen of either variety this summer, although in past years they have swarmed on our trees and fences.

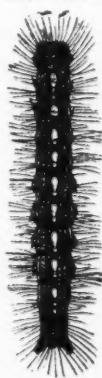


Fig. 10.

berry fruit worm." It is a pale shining green or reddish-green caterpillar about three quarters of an inch long, with a pale brown horny-looking head, and with a patch of a similar colour on the second segment. It lives within the fruit, making its ingress and egress through a small hole, barely big enough to allow its body to pass through; and as there is no room in the enclosure in which it lives for the larva to turn itself, when danger threatens it backs out very expeditiously, and by means of a silken thread, always ready, allows itself to drop gently to the ground; but when the disturber of its quiet has gone, it draws in the thread by which it had descended, and thus regains its former position. The first indication of its presence is in the premature colouring of the fruit it is operating on, and an unnatural grouping of the berries, which soon put on a withered look. On examination, it is found that the berries surrounding the one in which the insect lives have been drawn together, and bound with silken threads; and to facilitate this binding process, such berries are usually detached from their natural position by biting through the stems, and are then held in place by the silken threads only. This insect does not confine itself to the cultivated gooseberry; we have found it on the wild ones as well, especially on the Prickly Gooseberry, *Ribes cynosbati*. It also freely attacks the Currant, both the white and red varieties, and occasionally though less often, it is found on the Black Currant likewise. In the case of these smaller fruits, a single berry is not large enough for the worm to shelter itself in; so here it draws the clusters together and lives in their midst.

During the latter part of June, this worm, now full grown, lowers itself by the silken thread already referred to, to the ground, where it constructs a small silken cocoon amongst dry leaves or other rubbish, and within this changes to a dark brown chrysalis. It remains in this condition till the following spring, when it appears late in April as a small grey moth.



Fig. 11.

Fig. 11 represents the moth and chrysalis, natural size. The fore wings of the moth are pale grey, with many streaks and dots of a darker shade; the hind wings paler and dusky.

The moth deposits its eggs soon after the fruit has set, and when hatched, the young larva begins to burrow at once into the fruit. This insect has been very numerous during the present season. Where it once establishes itself it is very difficult to eradicate; in proper time hand picking is the

surest remedy, but as the worms will, by this time, have gone into the pupa or inactive state, it is too late to apply this means now; some good may, however, be done by raking up and burning all the dry leaves and rubbish under and about the bushes. It has also been recommended to give fowls the run of such places, when they are said to scratch up and devour many of the chrysalides. In the absence of such friendly help, a top-dressing of lime or ashes would probably prove beneficial. For fuller details in reference to this insect the reader is referred to the report of the Entomological Society of Ontario for 1871, p. 42 and 43.

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DESCRIPTIONS OF

TWO SPECIES OF ANAPHORA.

BY AUG. R. GROTE, DEMOPOLIS.

In Dr. Clemens' Tineid genus *Anaphora*, the fore wings are 12-veined. The submedian fold, however, seems to me to become a true vein towards the margin, giving an additional vein (vein 1b). Internal nervure, vein 1a, shortly furcate at base. Median nervure sending out vein 2 near the extremity to internal angle; and emitting 3 and 4, nearer together, on to the external margin. From the base of the wing at the middle of the discal cell, a "veinlet" is emitted which is furcate before the centre of the wing, sending one branch, the lower, out to extremity of the cell between the origin of 4 and 5, near 4, and angularly connected with it, while 5 seems independant. Its upper branch, apparently the "median fold," terminates between veins 5 and 6. An analogous "veinlet" is thrown off from the lower side of sub-costal nervure beyond the point of furcation of the median "veinlet," and terminates at the extremity of discal cell, and at the origin of vein 8. Veins 7, 8, 9, near together at base; 8 to apex; 9 to costa; 10 a little removed at base; 11 thrown off near base of the wing. Hind wings 8-veined; veins 1a and 1b divaricating on to the margin. Discal cell closed by a "veinlet;" vein 4 thrown off from a furcating median veinlet at the middle of the discal cell; 5 thrown off from the "veinlet," closing the cell between 4 and 6, near to 6, which latter is sub-continuous with the upper fork of the median cellular "veinlet." The two internal veins are counted together. Vein 7 to apex; 8 to costa shortly before the tip.



*Anaphora mortipennella*, Grote ♂.—Labial palpi reflexed, thrown back over and as long as the dorsum of thorax, but not closely applied, thickly scaled but less so than in allied species, fuscous outwardly along the sides, dead whitish on the inside. Head and thorax above dead or dirty whitish. Primaries pale, dirty whitish, with heavily sprinkled black scales on costal region at base, fading outwardly. A black scale patch at extremity of discal cell, and a larger one on submedian fold, below median vein, at about the middle of the wing; parallel with this at base, a few black scales. There is a faint sprinkling of black scales over the median nervules, and about internal angle are two or three better marked black points on the margin. Four costal black marks before the apex, the first of these above discal spot; other costal marks towards the base of the wing. Fringes fuscous, faintly lined. Secondaries fuscous, much darker than, and strangely contrasting with, the pallid primaries. Beneath both wings fuscous with ochrey stains. The basal joint of labial palpi is prominently dark fuscous or blackish outwardly. *Expanse* 25 m. m. Central Alabama. June.

Smaller than *A. plumifrontella*, and easily recognized by its pallid discoloured fore wings, which are also a little more determinate at apices and internal angle than usual.

*Anaphora agrotipennella*, Grote ♂.—Fuscous or blackish wood brown. Labial palpi reflexed, and as long as the dorsum of thorax, a little paler inwardly, blackish outwardly. Primaries above fuscous, blackish, with a light purplish reflection. From the base outwardly, below median vein, is a prominent pale streak fading externally, where it is diffuse and dark ochrey. It is bordered beneath at base by black scales like a dash, and surmounted and partly interrupted by a black scale patch below median nervure before vein 2. On the discal cell is an unimportant black scale patch towards the base, beyond which an obscure ochrey longitudinal median shade, sometimes lost, stretches over the nervules, and is interrupted at the extremity of the cell by a distinct black subquadrate scale patch. Faint blackish costal and terminal marks; fringes fuscous. Secondaries and their fringes fuscous. Beneath, both wings and body parts blackish-fuscous. *Expanse* 27 m. m. Central Alabama; June and July. Very common.

I have only seen males of this species, in which the ornamentation of the fore wings above recalls that of various species of *Agrotis*, such as *A. jaculifera*, etc. I have tried to recognize in this species *A. Popeanella*,

Clemens, from Texas, but I have failed to reconcile his description with my specimens, which are not "luteous or yellow along inner margin." In *A. agrotipennella*, at the extremity of the median ochrey shade subterminally, are a few black scale points. These can hardly be the same as the row "of dark brown spots" of *Popeanella*.

Neither can I, from the description, consider the differences of colour and ornamentation as produced by any defect in the condition of Dr. Clemens' specimens.

Recently, a specimen of *A. agrotipennella* came into my room to light, upon which, even before capture, I saw several large scarlet mites. Upon pinning the insect, I found them to be five in number, moving freely over the body. When the insect settled, they collected on the dorsum of the abdomen, and were hidden by the wings. The specimen did not seem to be suffering from the presence of these proportionately enormous external parasites. After the death of the moth, they left its body for the table, which they traversed in various directions with considerable celerity. I regret I did not observe them further.

The genus *Anaphora* is represented in Cuba by a species much exceeding in size our *A. plumifrontella*, which latter exceeds the two species described above in expanse. Specimens of the species above described are contained in Coll. American Ent. Society.

I am sure we are all grateful to Mr. Stainton for his collection, in book form, of the writings of the late Dr. Brackenridge Clemens, on North American *Tineina*. Within the limits of 282 beautifully printed pages, we have collected all of Dr. Clemens' writings on this group, with memoranda of his descriptions in other families of the moths, and copies of his correspondence. No student of North American Micro's can afford to be without this book, which is enriched with notes on our species by its talented editor. As a matter of international courtesy, this publication deserves meritorious remembrance.

From an original engraving of the head of *Anaphora Popeanella*, on page 60, fig. 4, we see that its palpal structure differs from that of *A. plumifrontella*, with which latter *A. mortipennella* and *A. agrotipennella* coincide.

#### MISCELLANEOUS NOTES.

FEMALE DECOYS.—Last summer an enthusiastic lepidopterist in Kingston put a young female *Cecropia* moth (*Platysamia Cecropia*) in a box, with wire gauze on one side, and placed it on his verandah—which,

by the way, is at a considerable distance from any trees. Although my friend did not watch very long, yet, the first night he caught five males, attracted thither in some unknown and mysterious way, by their fair relative; the second night, ten males were captured, and on the third, eight more were taken; while, in the morning, the scattered remains of five other amorous moths, (slain doubtless by the cats), were found lying near the cage. Several specimens of *Telca Polyphemus* were taken in the same manner. Is not this decidedly the easiest and most successful way of collecting a good harvest of these gorgeous creatures?—R. V. ROGERS, Kingston.

**BLISTERING BEETLES.**—During the past month complaints have reached us of the ravages of one of the Blistering Beetles, *Macrobasis fabricii*, Lec., (*Lytta cinerea*, Fab.,) on potato vines. They are said to have been very destructive in the township of Burford, destroying the tops in some localities, eating small holes all over the leaves.

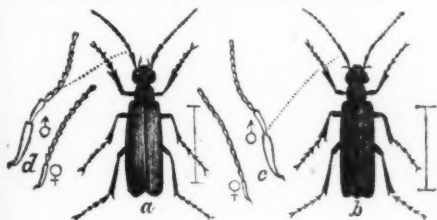


Fig. 12.

Fig. 12a represents this species, the hair line at the sides showing its natural size. *b* is another variety of Blistering Beetle not yet found in Canada, but destructive to the potato in some parts of the United States.

Complaints reached us last year from a correspondent in the eastern part of Ontario, of the Striped Blistering Beetle, *Epicauta vittata*, fig. 13, damaging, in fact almost destroying a crop of Beets. In some of the southern parts of the Western States they are very abundant on the potato vines, sometimes injuring them considerably. Should any of our readers meet with either of these insects in any quantity, we should be greatly obliged if they would collect a few ounces of them and forward by mail, as we are anxious to have their medicinal value as blistering agents more thoroughly tested than they have heretofore been.—W. SAUNDERS, London, Ont.



Fig. 13.

**STRIDULATION OF ORTHOSOMA CYLINDRICUM, Fabr.**—The stridulating noises made by many Long-horned beetles (*Cerambycidae*) are well known to be produced by rubbing the posterior margin of the prothorax against

certain horny processes between it and the mesothorax, or against the base of the elytra. It is not so generally known, however, that the above named insect forms a decided exception to the rule. This species is a true fiddler, stridulating like the Orthopterous *Locustidae* by rubbing the hind femora against the elytra. If a specimen be carefully examined, the inside of these femora will be found rasped from the base to near the tip, by a number of short longitudinal ridges, which, when played against the thin and sharp emarginations of the elytra, produce the rather loud creaking so peculiar to this beetle.

I cannot recall any author who has published this fact, though as *Prionus coriarius* is called "the fiddler," in Germany, that species may stridulate in the same manner.—C. V. RILEY, St. Louis, July 9, 1872.

P. S.—*Prionus imbricornis* Linn. (i. e., the dark brown form which, I believe, is labeled *obliquicornis* in Le Conte's collection), likewise stridulates by rubbing the hind femora against the lateral edges of the elytra. But as the thigh in this species does not reach as far above the wing-cover as does that of *Orthosoma cylindricum*, we find no rasp on the inside, which is perfectly smooth; and the noise is produced by the friction of the inner lower margin, principally near the end of the thigh, where it is slightly dilated.—C. V. R.

INSECTS IN PENNSYLVANIA.—The Seventeen-year Locusts, as they are called, have made their appearance here and in the vicinity. Here, very abundantly, but diminish in numbers at Jersey Shore and Lock Haven. Further westward, I saw none. In the stage from the depot to Jersey Shore, I listened to an exposition by a physician: on the poisonous qualities of the insect in question, of the existence of which quality he was quite assured. The lady, however, who was his inquisitor, thought it strange if the "locusts" were really so poisonous, that the children, who handled them freely, were not more frequently poisoned. The doctor got over this by assuring the lady that they were not "aggressive."

Popular report gives the year 1865 as that of their last appearance, but this is not very reliable authority.

So far as intervals of business allow me to judge, I should say that insect life is not abundant in North-western Pennsylvania this year. An *Argynnis* observed at Ridgway, nearly at the summit of the Alleghanies, in considerable abundance. Have not yet determined the species. *Cicini*; ~~dele~~, principally *repanda*, 12 *guttata*, with a few *purpurea*, found on the banks of the Susquehanna from Schickshinny downwards.—W. V. ANDREWS, Williamsport, Pa., June, 1872.

